

ABSTRACT

A composite oxide suitable for an active material of a positive electrode for a lithium secondary cell which can be used in a wide range of voltage, has a large electric capacity and excellent low temperature performance and is excellent in the durability for charge-discharge cycles and highly safe, a process for its production, and a positive electrode and a cell employing it, are presented.

10       The composite oxide is a lithium-cobalt composite oxide which is represented by the formula  $\text{LiCo}_{1-x}\text{M}_x\text{O}_2$ , (wherein  $0 \leq x \leq 0.02$  and M is at least one member selected from the group consisting of Ta, Ti, Nb, Zr and Hf), and which has a half-width of the diffraction  
15       peak for (110) face at  $2\theta = 66.5 \pm 1^\circ$ , of from  $0.070$  to  $0.180^\circ$ , as measured by the X-ray diffraction using  $\text{CuK}_\alpha$  as a ray source.